



June 17, 2016

Meagan E. Ormand Golder Associates Inc. 2108 W. Laburnum Ave. Suite 200 Richmond, VA 23227

RE: Project: BREMO WEEKLY PROCESS

Pace Project No.: 92301445

#### Dear Meagan Ormand:

Enclosed are the analytical results for sample(s) received by the laboratory on June 15, 2016. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

Analyses were performed at the Pace Analytical Services location indicated on the sample analyte page for analysis unless otherwise footnoted.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Nicole Gasiorowski

Micolo Yasicronske

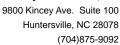
nicole.gasiorowski@pacelabs.com

**Project Manager** 

Enclosures

cc: Ron DiFrancesco, Golder Associates Inc. Martha Smith, Golder Associates Inc. Mike Williams, Golder Associates Inc







#### **CERTIFICATIONS**

Project: **BREMO WEEKLY PROCESS** 

Pace Project No.: 92301445

**Ormond Beach Certification IDs** 

8 East Tower Circle, Ormond Beach, FL 32174

Alabama Certification #: 41320 Connecticut Certification #: PH-0216

Delaware Certification: FL NELAC Reciprocity

Florida Certification #: E83079 Georgia Certification #: 955

Guam Certification: FL NELAC Reciprocity

Hawaii Certification: FL NELAC Reciprocity

Illinois Certification #: 200068

Indiana Certification: FL NELAC Reciprocity

Kansas Certification #: E-10383

Louisiana Certification #: FL NELAC Reciprocity

Louisiana Environmental Certificate #: 05007

Maryland Certification: #346 Michigan Certification #: 9911

Mississippi Certification: FL NELAC Reciprocity

Missouri Certification #: 236

Montana Certification #: Cert 0074

**Charlotte Certification IDs** 

9800 Kincey Ave. Ste 100, Huntersville, NC 28078 North Carolina Drinking Water Certification #: 37706

North Carolina Field Services Certification #: 5342

North Carolina Wastewater Certification #: 12

**Asheville Certification IDs** 

2225 Riverside Drive, Asheville, NC 28804

Florida/NELAP Certification #: E87648

Massachusetts Certification #: M-NC030

North Carolina Drinking Water Certification #: 37712

Nebraska Certification: NE-OS-28-14

Nevada Certification: FL NELAC Reciprocity

New York Certification #: 11608

North Carolina Environmental Certificate #: 667

North Carolina Certification #: 12710 North Dakota Certification #: R-216

Oklahoma Certification #: D9947

Pennsylvania Certification #: 68-00547 Puerto Rico Certification #: FL01264

South Carolina Certification: #96042001 Tennessee Certification #: TN02974

Texas Certification: FL NELAC Reciprocity

US Virgin Islands Certification: FL NELAC Reciprocity

Virginia Environmental Certification #: 460165

Wyoming Certification: FL NELAC Reciprocity

West Virginia Certification #: 9962C Wisconsin Certification #: 399079670

Wyoming (EPA Region 8): FL NELAC Reciprocity

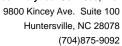
South Carolina Certification #: 99006001

Florida/NELAP Certification #: E87627 Kentucky UST Certification #: 84

Virginia/VELAP Certification #: 460221

North Carolina Wastewater Certification #: 40 South Carolina Certification #: 99030001

Virginia/VELAP Certification #: 460222



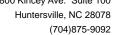


#### **SAMPLE ANALYTE COUNT**

Project: BREMO WEEKLY PROCESS

Pace Project No.: 92301445

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory		
92301445001	T1-160615-1240-S3	EPA 1664B	JMS	1	PASI-C		
		EPA 200.7	CKJ	1	PASI-O		
		Trivalent Chromium Calculation	CKJ	1	PASI-O		
		EPA 200.8	DRS	10	PASI-O		
		EPA 245.1	WAB	1	PASI-A		
		SM 2540D	SAM	1	PASI-A		
		EPA 218.7	AEM	1	PASI-O		
		EPA 350.1	AES2	1	PASI-A		
		SM 4500-CI-E	AES2	1	PASI-A		





Project: BREMO WEEKLY PROCESS

Pace Project No.: 92301445

Method: EPA 1664B

**Description:** HEM, Oil and Grease **Client:** Golder\_Dominion\_Bremo

Date: June 17, 2016

#### **General Information:**

1 sample was analyzed for EPA 1664B. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

#### **Hold Time:**

The samples were analyzed within the method required hold times with any exceptions noted below.

#### Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

#### **Continuing Calibration:**

All criteria were within method requirements with any exceptions noted below.

#### Surrogates:

All surrogates were within QC limits with any exceptions noted below.

#### Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

#### **Laboratory Control Spike:**

All laboratory control spike compounds were within QC limits with any exceptions noted below.

#### Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.



#### **PROJECT NARRATIVE**

Project: BREMO WEEKLY PROCESS

Pace Project No.: 92301445

Method: EPA 200.7
Description: 200.7 MET ICP

Client: Golder\_Dominion\_Bremo

**Date:** June 17, 2016

#### **General Information:**

1 sample was analyzed for EPA 200.7. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

#### **Hold Time:**

The samples were analyzed within the method required hold times with any exceptions noted below.

#### Sample Preparation:

The samples were prepared in accordance with EPA 200.7 with any exceptions noted below.

#### Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

#### **Continuing Calibration:**

All criteria were within method requirements with any exceptions noted below.

#### Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

#### **Laboratory Control Spike:**

All laboratory control spike compounds were within QC limits with any exceptions noted below.

#### Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.



Huntersville, NC 28078 (704)875-9092

#### **PROJECT NARRATIVE**

Project: BREMO WEEKLY PROCESS

Pace Project No.: 92301445

Method:Trivalent Chromium CalculationDescription:Trivalent Chromium CalculationClient:Golder\_Dominion\_Bremo

Date: June 17, 2016

#### **General Information:**

1 sample was analyzed for Trivalent Chromium Calculation. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

#### **Hold Time:**

The samples were analyzed within the method required hold times with any exceptions noted below.

#### Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

#### **Continuing Calibration:**

All criteria were within method requirements with any exceptions noted below.

#### Method Blank:

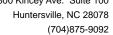
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

#### **Laboratory Control Spike:**

All laboratory control spike compounds were within QC limits with any exceptions noted below.

#### Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.





Project: BREMO WEEKLY PROCESS

Pace Project No.: 92301445

Method: EPA 200.8

**Description:** 200.8 MET ICPMS **Client:** Golder\_Dominion\_Bremo

**Date:** June 17, 2016

#### **General Information:**

1 sample was analyzed for EPA 200.8. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

#### **Hold Time:**

The samples were analyzed within the method required hold times with any exceptions noted below.

#### **Sample Preparation:**

The samples were prepared in accordance with EPA 200.8 with any exceptions noted below.

#### Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

#### **Continuing Calibration:**

All criteria were within method requirements with any exceptions noted below.

#### Internal Standards:

All internal standards were within QC limits with any exceptions noted below.

#### Method Blank:

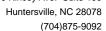
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

#### **Laboratory Control Spike:**

All laboratory control spike compounds were within QC limits with any exceptions noted below.

#### Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.





Project: BREMO WEEKLY PROCESS

Pace Project No.: 92301445

Method: EPA 245.1 Description: 245.1 Mercury

Client: Golder\_Dominion\_Bremo

**Date:** June 17, 2016

#### **General Information:**

1 sample was analyzed for EPA 245.1. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

#### **Hold Time:**

The samples were analyzed within the method required hold times with any exceptions noted below.

#### Sample Preparation:

The samples were prepared in accordance with EPA 245.1 with any exceptions noted below.

#### Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

#### **Continuing Calibration:**

All criteria were within method requirements with any exceptions noted below.

#### Method Blank:

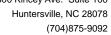
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

#### **Laboratory Control Spike:**

All laboratory control spike compounds were within QC limits with any exceptions noted below.

#### Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.





Project: BREMO WEEKLY PROCESS

Pace Project No.: 92301445

Method: SM 2540D

**Description:** 2540D TSS, Low-Level **Client:** Golder\_Dominion\_Bremo

**Date:** June 17, 2016

#### **General Information:**

1 sample was analyzed for SM 2540D. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

#### **Hold Time:**

The samples were analyzed within the method required hold times with any exceptions noted below.

#### Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

#### **Laboratory Control Spike:**

All laboratory control spike compounds were within QC limits with any exceptions noted below.

#### Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

#### **Duplicate Sample:**

All duplicate sample results were within method acceptance criteria with any exceptions noted below.



#### **PROJECT NARRATIVE**

Project: BREMO WEEKLY PROCESS

Pace Project No.: 92301445

Method: EPA 218.7

**Description:** Hexavalent Chromium by IC **Client:** Golder\_Dominion\_Bremo

**Date:** June 17, 2016

#### **General Information:**

1 sample was analyzed for EPA 218.7. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

#### **Hold Time:**

The samples were analyzed within the method required hold times with any exceptions noted below.

#### Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

#### **Continuing Calibration:**

All criteria were within method requirements with any exceptions noted below.

#### Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

#### **Laboratory Control Spike:**

All laboratory control spike compounds were within QC limits with any exceptions noted below.

#### Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.



#### **PROJECT NARRATIVE**

Project: BREMO WEEKLY PROCESS

Pace Project No.: 92301445

Method: EPA 350.1

Description: 350.1 Ammonia

Client: Golder\_Dominion\_Bremo

**Date:** June 17, 2016

#### **General Information:**

1 sample was analyzed for EPA 350.1. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

#### **Hold Time:**

The samples were analyzed within the method required hold times with any exceptions noted below.

#### Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

#### **Continuing Calibration:**

All criteria were within method requirements with any exceptions noted below.

#### Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

#### **Laboratory Control Spike:**

All laboratory control spike compounds were within QC limits with any exceptions noted below.

#### Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.



#### **PROJECT NARRATIVE**

Project: BREMO WEEKLY PROCESS

Pace Project No.: 92301445

Method: SM 4500-CI-E Description: 4500 Chloride

Client: Golder\_Dominion\_Bremo

Date: June 17, 2016

#### **General Information:**

1 sample was analyzed for SM 4500-CI-E. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

#### **Hold Time:**

The samples were analyzed within the method required hold times with any exceptions noted below.

#### Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

#### **Continuing Calibration:**

All criteria were within method requirements with any exceptions noted below.

#### Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

#### **Laboratory Control Spike:**

All laboratory control spike compounds were within QC limits with any exceptions noted below.

#### Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

#### **Additional Comments:**

This data package has been reviewed for quality and completeness and is approved for release.



#### **ANALYTICAL RESULTS**

Project: BREMO WEEKLY PROCESS

Pace Project No.: 92301445

Date: 06/17/2016 04:24 PM

Sample: T1-160615-1240-S3	Lab ID: 92	301445001	Collected: 06/15/1	16 12:40	Received: 06	6/15/16 13:52	Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qua
Field Data	Analytical Me	thod:						
Collected By	L.			1		06/15/16 12:46	5	
	HAMELMA N							
Collected Date	06/15/16			1		06/15/16 12:46	<b>`</b>	
Collected Time	12:40			1		06/15/16 12:46		
ield pH	8.1	Std. Units	0.10	1		06/15/16 12:46		
IEM, Oil and Grease	Analytical Me	thod: EPA 16	64B					
il and Grease	ND	mg/L	5.0	1		06/16/16 09:11		
00.7 MET ICP	Analytical Me	thod: EPA 200	0.7 Preparation Met	thod: EP	A 200.7			
ot Hardness asCaCO3 (SM 2340B	72600	ug/L	3300	1	06/16/16 11:26	06/16/16 15:10	)	
rivalent Chromium Calculation	Analytical Me	thod: Trivalen	t Chromium Calcula	ition				
Chromium, Trivalent	ND	ug/L	5.0	1		06/16/16 16:53	3 16065-83-1	
00.8 MET ICPMS	Analytical Me	thod: EPA 200	0.8 Preparation Met	thod: EP	A 200.8			
ntimony	ND	ug/L	5.0	1	06/16/16 11:26	06/16/16 15:29	7440-36-0	
rsenic	44.3	ug/L	5.0	1	06/16/16 11:26	06/16/16 15:29	7440-38-2	
admium	ND	ug/L	1.0	1	06/16/16 11:26	06/16/16 15:29	7440-43-9	
copper	ND	ug/L	5.0	1		06/16/16 15:29		
ead	ND	ug/L	5.0	1		06/16/16 15:29		
lickel	ND	ug/L	5.0	1		06/16/16 15:29		
Selenium 	ND	ug/L	5.0	1		06/16/16 15:29		
Silver 	ND	ug/L	0.40	1		06/16/16 15:29		
hallium 	ND	ug/L	1.0	1		06/16/16 15:29		
inc	ND	ug/L	25.0	1		06/16/16 15:29	7440-66-6	
45.1 Mercury	Analytical Me	thod: EPA 24	5.1 Preparation Met	thod: EP	A 245.1			
Mercury	ND	ug/L	0.10	1	06/16/16 12:02	06/17/16 14:12	2 7439-97-6	
540D TSS, Low-Level	Analytical Me	thod: SM 254	0D					
otal Suspended Solids	ND	mg/L	1.0	1		06/16/16 10:32	2	
lexavalent Chromium by IC	Analytical Me	thod: EPA 21	8.7					
hromium, Hexavalent	ND	ug/L	3.0	3		06/16/16 12:13	18540-29-9	
50.1 Ammonia	Analytical Me	thod: EPA 350	0.1					
litrogen, Ammonia	ND	mg/L	0.20	1		06/16/16 12:23	7664-41-7	
500 Chloride	Analytical Me	thod: SM 450	0-CI-E					



Project: BREMO WEEKLY PROCESS

Pace Project No.: 92301445

QC Batch: GCSV/25277 Analysis Method: EPA 1664B

QC Batch Method: EPA 1664B Analysis Description: 1664 HEM, Oil and Grease

Associated Lab Samples: 92301445001

METHOD BLANK: 1756880 Matrix: Water

Associated Lab Samples: 92301445001

Parameter Units Result Limit Analyzed Qualifiers

Oil and Grease mg/L ND 5.0 06/16/16 09:09

LABORATORY CONTROL SAMPLE: 1756881

Spike LCS LCS % Rec Parameter Units Conc. Result % Rec Limits Qualifiers Oil and Grease mg/L 40 35.4 88 78-114

MATRIX SPIKE SAMPLE: 1756882

Date: 06/17/2016 04:24 PM

92300980002 Spike MS MS % Rec Parameter Units Result Conc. Result % Rec Limits Qualifiers ND Oil and Grease 40 33.0 82 78-114 mg/L

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.



Project: BREMO WEEKLY PROCESS

Pace Project No.: 92301445

Date: 06/17/2016 04:24 PM

QC Batch: MERP/9616 Analysis Method: EPA 245.1

QC Batch Method: EPA 245.1 Analysis Description: 245.1 Mercury

Associated Lab Samples: 92301445001

METHOD BLANK: 1757151 Matrix: Water

Associated Lab Samples: 92301445001

Blank Reporting
Parameter Units Result Limit Analyzed Qualifiers

Mercury ug/L ND 0.10 06/17/16 13:55

LABORATORY CONTROL SAMPLE: 1757152

Spike LCS LCS % Rec Parameter Units Conc. Result % Rec Limits Qualifiers Mercury ug/L 2.4 97 85-115

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1757153 1757154

MS MSD 92301096001 Spike Spike MS MSD MS MSD % Rec Parameter Units Result Conc. Conc. Result Result % Rec % Rec Limits RPD Qual ug/L ND 2.5 2.5 2.3 70-130 Mercury 2.4 96 92 4

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.



**BREMO WEEKLY PROCESS** Project:

Pace Project No.: 92301445

QC Batch: MPRP/31117 QC Batch Method: EPA 200.7

Analysis Method: Analysis Description: EPA 200.7

200.7 MET

Qualifiers

Associated Lab Samples: 92301445001

METHOD BLANK: 1609067 Matrix: Water

Associated Lab Samples: 92301445001

> Blank Reporting Parameter Limit Units Result Analyzed

Tot Hardness asCaCO3 (SM 2340B ND 3300 06/16/16 14:50 ug/L

LABORATORY CONTROL SAMPLE: 1609068

Spike LCS LCS % Rec Parameter Units Conc. Result % Rec Limits Qualifiers Tot Hardness asCaCO3 (SM 2340B ug/L 165000 149000 90 85-115

1609073 MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1609072

MS MSD 92301450001 Spike Spike MS MSD MS MSD % Rec Parameter Units Result Conc. Conc. Result Result % Rec % Rec Limits RPD Qual Tot Hardness asCaCO3 (SM ug/L 74000 165000 226000 70-130 165000 228000 92 93 1

2340B

Date: 06/17/2016 04:24 PM

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.



Project: BREMO WEEKLY PROCESS

Pace Project No.: 92301445

QC Batch: MPRP/31118 Analysis Method: EPA 200.8
QC Batch Method: EPA 200.8 Analysis Description: 200.8 MET

Associated Lab Samples: 92301445001

METHOD BLANK: 1609078 Matrix: Water

Associated Lab Samples: 92301445001

		Blank	Reporting		
Parameter	Units	Result	Limit	Analyzed	Qualifiers
Antimony	ug/L	ND	5.0	06/16/16 15:17	
Arsenic	ug/L	ND	5.0	06/16/16 15:17	
Cadmium	ug/L	ND	1.0	06/16/16 15:17	
Copper	ug/L	ND	5.0	06/16/16 15:17	
Lead	ug/L	ND	5.0	06/16/16 15:17	
Nickel	ug/L	ND	5.0	06/16/16 15:17	
Selenium	ug/L	ND	5.0	06/16/16 15:17	
Silver	ug/L	ND	0.40	06/16/16 15:17	
Thallium	ug/L	ND	1.0	06/16/16 15:17	
Zinc	ug/L	ND	25.0	06/16/16 15:17	

LABORATORY	CONTROL SAMPLE:	1609079	

Date: 06/17/2016 04:24 PM

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers		
Antimony	ug/L	150	148	98	85-115			
Arsenic	ug/L	100	101	101	85-115			
Cadmium	ug/L	10	10.1	101	85-115			
Copper	ug/L	50	51.4	103	85-115			
Lead	ug/L	100	102	102	85-115			
Nickel	ug/L	50	50.5	101	85-115			
Selenium	ug/L	150	157	104	85-115			
Silver	ug/L	50	49.8	100	85-115			
Thallium	ug/L	150	163	108	85-115			
Zinc	ug/L	200	210	105	85-115			

MATRIX SPIKE & MATRIX SI	PIKE DUPLICAT	E: 16090	80		1609081						
			MS	MSD							
	923	301423001	Spike	Spike	MS	MSD	MS	MSD	% Rec		
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	Qual
Antimony	ug/L	ND	150	150	154	152	100	99	70-130	1	
Arsenic	ug/L	42.3	100	100	143	141	101	99	70-130	1	
Cadmium	ug/L	ND	10	10	10.2	9.9	101	99	70-130	3	
Copper	ug/L	ND	50	50	51.5	50.5	102	100	70-130	2	
Lead	ug/L	ND	100	100	108	105	108	105	70-130	2	
Nickel	ug/L	ND	50	50	51.5	50.6	101	99	70-130	2	
Selenium	ug/L	ND	150	150	155	153	102	101	70-130	1	
Silver	ug/L	ND	50	50	49.3	48.5	99	97	70-130	2	
Thallium	ug/L	ND	150	150	167	165	111	110	70-130	2	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.



Project: BREMO WEEKLY PROCESS

Pace Project No.: 92301445

Date: 06/17/2016 04:24 PM

Zinc

MATRIX SPIKE & MATRIX SPIKI	E DUPLICAT	E: 16090	80		1609081						
			MS	MSD							
	923	301423001	Spike	Spike	MS	MSD	MS	MSD	% Rec		
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	Qual

200

204

202

101

100 70-130

ND

200

ug/L

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.



Project: BREMO WEEKLY PROCESS

Pace Project No.: 92301445

QC Batch: WET/45564 Analysis Method: SM 2540D

QC Batch Method: SM 2540D Analysis Description: 2540D Total Suspended Solids

Associated Lab Samples: 92301445001

METHOD BLANK: 1757095 Matrix: Water

Associated Lab Samples: 92301445001

Blank Reporting
Parameter Units Result Limit Analyzed Qualifiers

Total Suspended Solids mg/L ND 1.0 06/16/16 10:29

LABORATORY CONTROL SAMPLE: 1757096

Spike LCS LCS % Rec Parameter Units Conc. Result % Rec Limits Qualifiers **Total Suspended Solids** mg/L 250 260 104 90-110

SAMPLE DUPLICATE: 1757097

Date: 06/17/2016 04:24 PM

Parameter Units Parameter Units Parameter Units Parameter Result Result RPD Qualifiers Total Suspended Solids mg/L ND ND

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.



Project: BREMO WEEKLY PROCESS

Pace Project No.: 92301445

Date: 06/17/2016 04:24 PM

QC Batch: WETA/58761 Analysis Method: EPA 218.7

QC Batch Method: EPA 218.7 Analysis Description: Chromium, Hexavalent IC

Associated Lab Samples: 92301445001

METHOD BLANK: 1608747 Matrix: Water

Associated Lab Samples: 92301445001

Blank Reporting
Parameter Units Result Limit Analyzed Qualifiers

Chromium, Hexavalent ug/L ND 1.0 06/16/16 11:06

LABORATORY CONTROL SAMPLE: 1608748

Spike LCS LCS % Rec Parameter Units Conc. Result % Rec Limits Qualifiers Chromium, Hexavalent ug/L .075 .069J 92 85-115

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1608749 1608750

MS MSD 92301143001 Spike Spike MS MSD MS MSD % Rec Parameter Units Result Conc. Conc. Result Result % Rec % Rec Limits RPD Qual Chromium, Hexavalent ug/L 0.077 .075 85-115 .075 .15J .15J 99 97 1

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.



Project: BREMO WEEKLY PROCESS

Pace Project No.: 92301445

Date: 06/17/2016 04:24 PM

QC Batch: WETA/27976 Analysis Method: EPA 350.1

QC Batch Method: EPA 350.1 Analysis Description: 350.1 Ammonia

Associated Lab Samples: 92301445001

METHOD BLANK: 1757006 Matrix: Water

Associated Lab Samples: 92301445001

Blank Reporting
Parameter Units Result Limit Analyzed Qualifiers

Nitrogen, Ammonia mg/L ND 0.20 06/16/16 12:14

LABORATORY CONTROL SAMPLE: 1757007

Spike LCS LCS % Rec Parameter Units Conc. Result % Rec Limits Qualifiers Nitrogen, Ammonia mg/L 5.0 100 90-110

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1757008 1757009

MS MSD 92301305001 Spike Spike MS MSD MS MSD % Rec Parameter Units Result Conc. Conc. Result Result % Rec % Rec Limits RPD Qual Nitrogen, Ammonia ND 5 5 5.1 5.2 90-110 mg/L 103 103 0

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

90-110

0

98



#### **QUALITY CONTROL DATA**

Project: BREMO WEEKLY PROCESS

Pace Project No.: 92301445

Chloride

Date: 06/17/2016 04:24 PM

QC Batch: WETA/27975 Analysis Method: SM 4500-CI-E
QC Batch Method: SM 4500-CI-E Analysis Description: 4500 Chloride

Associated Lab Samples: 92301445001

METHOD BLANK: 1756999 Matrix: Water

mg/L

Associated Lab Samples: 92301445001

Blank Reporting
Parameter Units Result Limit Analyzed Qualifiers

Chloride mg/L ND 5.0 06/16/16 12:22

83600

ug/L

LABORATORY CONTROL SAMPLE: 1757000

Spike LCS LCS % Rec Parameter Units Conc. Result % Rec Limits Qualifiers Chloride mg/L 20 21.2 106 90-110

10

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1757001 1757003 MS MSD 92301096001 Spike Spike MS MSD MS MSD % Rec Parameter Units Result Conc. Conc. Result Result % Rec % Rec Limits RPD Qual

10

93.9

93.4

103

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.



#### **QUALIFIERS**

Project: BREMO WEEKLY PROCESS

Pace Project No.: 92301445

#### **DEFINITIONS**

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

**DUP - Sample Duplicate** 

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

Acid preservation may not be appropriate for 2 Chloroethylvinyl ether, Styrene, and Vinyl chloride.

A separate vial preserved to a pH of 4-5 is recommended in SW846 Chapter 4 for the analysis of Acrolein and Acrylonitrile by EPA Method 8260.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

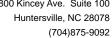
Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

#### **LABORATORIES**

Date: 06/17/2016 04:24 PM

PASI-A Pace Analytical Services - Asheville
PASI-C Pace Analytical Services - Charlotte
PASI-O Pace Analytical Services - Ormond Beach





#### **QUALITY CONTROL DATA CROSS REFERENCE TABLE**

Project: BREMO WEEKLY PROCESS

Pace Project No.: 92301445

Date: 06/17/2016 04:24 PM

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
92301445001	T1-160615-1240-S3		FLD/		
92301445001	T1-160615-1240-S3	EPA 1664B	GCSV/25277		
92301445001	T1-160615-1240-S3	EPA 200.7	MPRP/31117	EPA 200.7	ICP/18551
92301445001	T1-160615-1240-S3	Trivalent Chromium Calculation	ICP/18552		
92301445001	T1-160615-1240-S3	EPA 200.8	MPRP/31118	EPA 200.8	ICPM/12614
92301445001	T1-160615-1240-S3	EPA 245.1	MERP/9616	EPA 245.1	MERC/9240
92301445001	T1-160615-1240-S3	SM 2540D	WET/45564		
92301445001	T1-160615-1240-S3	EPA 218.7	WETA/58761		
92301445001	T1-160615-1240-S3	EPA 350.1	WETA/27976		
92301445001	T1-160615-1240-S3	SM 4500-CI-E	WETA/27975		

### Pace Analytical\*

#### Document Name:

#### Sample Condition Upon Receipt(SCUR)

Document No.: F-MEC-CS-009-Rev.03

Document Revised: May 24, 2016

Page 1 of 2

Issuing Authority:
Pace Mechanicsville Quality Office

WO#:92301445 Sample Condition Upon Client Name: Project: Courier: **USPS** Client Commercia I Other: Yes Myes Custody Seal Present? No Seals Intact? No Date/Initials Person Examining Contents: Bubble Wrap Bubble Bags Other:\_ Packing Material: None Thermometer: ₩et Blue None Samples on ice, cooling process has RMD001 Type of Ice: Correction Factor: 0.0°C Cooler Temp Corrected (°C): Biological Tissue Frozen? Yes No Temp should be above freezing to 6°C USDA Regulated Soil ( N/A, water sample) Did samples originate in a quarantine zone within the United States: CA, NY, or SC (check maps)? Did samples originate from a foreign source (internationally, Yes No including Hawaii and Puerto Rico)? Yes Comments/Discrepancy: Chain of Custody Present? Yes □No □N/A 1. Samples Arrived within Hold Time? ViYes □N/A 2. No Short Hold Time Analysis (<72 hr.)? Yes No 3. □N/A Rush Turn Around Time Requested? VYes 4. □No □N/A Sufficient Volume? Yes □No □N/A 5. Correct Containers Used? Yes No □N/A 6. -Pace Containers Used? Yes □No □N/A Containers Intact? Yes □No □N/A Samples Field Filtered? Yes □No M/A 8. Note if sediment is visible in the dissolved container Sample Labels Match COC? Yes Пио □N/A 9. -Includes Date/Time/ID/Analysis Matrix: All containers needing acid/base preservation have been 10. HNC3 pH<2 checked? Yes ☐ No □N/A Ha pH<2 All containers needing preservation are found to be in compliance with EPA recommendation? H2SO4 pH<2 (HNO<sub>3</sub>, H<sub>2</sub>SO<sub>4</sub>, HCl<2; NaOH >9 Sulfide, NaOH>12 Cyanide) Пио □N/A NaOH pH>12 Exceptions: VOA, Coliform, TOC, Oil and Grease, DRO/8015 (water) DOC,LLHg NaOH/ZnOAc pH>9 PYes No Samples checked for dechlorination? Yes □No N/A 11. Headspace in VOA Vials (>5-6mm)? Yes □No N/A 12. Trip Blank Present? □Yes □No N/A 13. Trip Blank Custody Seals Present? Пио MN/A Tyes Pace Trip Blank Lot # (if purchased): CLIENT NOTIFICATION/RESOLUTION Field Data Required? Yes No Person Contacted: Date/Time: Comments/Sample Discrepancy: Project Manager SCURF Review: Project Manager SRF Review: Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. Out of hold, incorrect preservative, out of temp, incorrect containers)

## "ace Analytical"

Section A
Required Client Information:

Company: Address:

# CHAIN-OF-CUST Y / Analytical Request Document

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				2/19/2008	ADDITIONAL												T1-160615-	SAMPLE ID (A-Z, 0-9 / -) Sample IDs MUST BE UNIQUE	Section D Required Client Information		Requested Due Date/TAT:	804-551-0129	Mormand@golder.com	Richmond, VA 23227	2108 W Labu	Golder Associates	Clien	Pace Analytical"
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